

15(6)

AUTHORS:

Andriyenko, V. I. and others. *Journal of Applied Physics*, 1977, 48, No. 1, p. 1000-1002.

TITLE:

On the structure of films of vitreous or red amorphous selenium in vacuum ($\sim 10^{-6}$ mm).

ORIGINATOR:

Doklady Akademiya Nauk SSSR, 1977, 245, No. 1, p. 100-101 (USSR).

ABSTRACT:

The authors performed the following for their investigations by sublimation of amorphous selenium vitreous or of red amorphous selenium in vacuum ($\sim 10^{-6}$ mm): 1) on zapon varnish films which were mounted on wire loops. The base was then dissolved in acetone and the selenium film was fished out by means of a copper net. 2) On zapon varnish films which were mounted on a specimen holder made of copper wire netting. The selenium film was then coated on the top with a second dense zapon varnish film. Sublimation was in both cases carried out at room temperature and the evaporation of vitreous or red amorphous selenium under these conditions led to the production of red amorphous selenium. A film thickness of 600 - 800 Å is best suited for determining a normal diffraction picture. During the

Card 1/3

On the Structure of Selenium in Thin Layers

SOV, 20-124-2-22/71

thermal treatment of the first samples (without bases) the following results were obtained: If the samples are exposed to a temperature of 35° for 5 hours, the electronogram of such samples consists of 4 aureoles, which are lacking in the case of an electronographic investigation of freshly prepared samples. Gradual heating to 30° increases the aureoles somewhat, and wear lines form on them. At $35-40^{\circ}$ the electronogram of a polycrystal already became noticeable, which is characteristic of the α -monoclinic modification of selenium. An increase of temperature up to $55-60^{\circ}$ leads to recrystallization, and at $\sim 65^{\circ}$ β -monoclinic selenium was observed. A further increase of temperature up to 100° leads to a gradual recrystallization, and if the samples are kept for some time at a temperature of 100° , a new hitherto not observed modification of the selenium occurs. The new structure of selenium belongs to the cubic symmetry with face-centered cubic lattice. This structure is here described as β -cubic (see the 15 photographs in figure 1). The thermal treatment of the selenium layers enclosed between rayon varnish films was carried out immediately in the electron microscope at a pressure of 10^{-5} torr. After such a local thermal treatment not only

Card 2/3

On the Structure of Selenium in the Cubic α -Modification

various modifications of selenium. In addition to the cubic α -modification, but not observed in the cubic α -modification is the α -modification. Sometimes observed in the cubic α -modification were a few of the structures with one selenium atom per unit cell. The structure is, however, not stable in the cubic α -modification, stable in the cubic α -modification. The modifications have been observed in the cubic α -modification. Several of the structures of the α -modification can by all means be regarded as probable. The considerable increase of the atomic radius (1.405 Å) of selenium in cubic α -modification as compared to the covalent radius (1.16 Å) can be explained by variation of the character of coordination. There are 2 figures, 1 table, and 11 references, 10 of which are Soviet.

ASSOCIATION: L'vovskiy politekhnicheskii institut (L'vov Polytechnic Institute)

PREPARED: September 9, 1956, by L. A. Belov, Academician

SUBMITTED: August 25, 1956

Card 5/3

ANDRIYEVSKIY, A. I.; HABITOVICH, I. D.

Structural transformations of tungsten in thin films. Fiz. tver.
tela 2 no.5:982-986 My '60. (MIRA 13:10)

1. L'vovskiy politekhnicheskii institut.
(Tungsten)

24.7000

S/070/60/005/03/003/008

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D. and Voloshchuk, Ya.V.

E132/E360

82267

TITLE: An Electron-diffraction Study of Thin Films of Amorphous Selenium

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 3, pp 369-374

TEXT: Selenium, both in thin films and in bulk, may be amorphous or may occur as one of two monoclinic, two cubic and one hexagonal modifications. X-ray measurements of the amorphous material have given a radial density distribution showing the radii of the first four coordination spheres. Layers of amorphous Se about 1 000 Å thick have been here studied electronographically, the radial density distribution function being obtained at 20, 40-50, 60-70 and at -180 °C. It is found that amorphous selenium has two forms each with the maximum possible coordination number. The first exists at about 20 °C and the second at about 70 °C. Within this range one form changes over to the other, by-passing the crystalline phase. The transition proceeds by the gradual breaking up of the structural units of the first form (ring molecules) and the formation of the chains of the second form. There is no orientational

Card 1/3

82267

S/070/60/005/03/003/008

E/132/E360

An Electron-diffraction Study of Thin Films of Amorphous Selenium

relationship between the two forms. The maximum degree of disorder must occur when equal quantities of the two different kinds of units coexist at about 30-40 °C as electronograms taken in this region show a maximum in the incoherent scattering intensity. The coordination number is here smaller than the maximum. If some crystalline selenium is formed, as some workers report, then the number of peaks in the radial distribution curve will be increased. When the second amorphous phase predominates then the number of peaks in the radial distribution curve decreases but the coordination number increases. The degree of ordering in both forms depends on temperature, as was found also for As_2Se_3 . The maximum degree of ordering was limited by the onset of crystallisation or by the transition to the other amorphous phase. The electronographic results obtained agree with the X-ray measurements of Richter and Steeb (Naturwiss. Vol 45, 461, 1958) for radii greater and less than 5 Å. Acknowledgments to L.I. Tatarinova.

Card 2/3

82267

S/070/60/005/03/003/008

An Electron-diffraction Study of Thin Films of Amorphous Selenium

There are 4 figures, 1 table and 21 references: 2 international,
1 English, 5 German and 13 Soviet.

ASSOCIATION: L'vovskiy politekhnicheskoy institut (L'vov
Polytechnical Institute)

SUBMITTED: December 19. 1959

X

Card 3/3

85094

S/070/60/005/003/023/024/XX

E132/E460

26.2420

AUTHORS: Andriyevskiy, A.I. and Nabitovich, I.D.

TITLE: On the Structure of the β -Cubic Modification of
Selenium ✓

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3 pp.465-466

TEXT: From earlier studies of selenium (Dokl. Akad. Nauk SSSR, 124, 321, 1959) the existence of two hitherto unknown forms of Se were established. These were α -Se with a simple cubic cell ($a = 2.970 \text{ \AA}$) and β -Se with a face centred cubic lattice ($a = 5.775 \text{ \AA}$). The proof of the latter form was open to the criticism that the possibility that it might really be Cu_2Se with $a = 5.840$ had not been eliminated. This has now been done by preparing the Se film by evaporation as an amorphous film on to a collodion film at 20°C . The collodion was then dissolved away and the Se film was slid over a 1 mm aperture in a Ta foil. Heat treatment of the Se film in the electron beam or otherwise then produced crystalline forms of Se. The lattice constant of the β -cubic form was redetermined as $6.04 \pm 0.01 \text{ \AA}$. This gives 8 Se atoms per cell. The extinctions indicate the space group $\text{Fd}3m = O_h^7$. The intensity curve obtained from multiple exposure Card 1/2

85094
S/070/60/005/003/023/024/XX
E132/E460

On the Structure of the β -Cubic Modification of Selenium

electron diffraction patterns agrees well with one calculated from the diamond lattice according to $I = \frac{8}{\sqrt{2}} d^2 \cdot p$ where $\frac{8}{\sqrt{2}} = 8 f_{Se}$ for $h+k+l = 4n$ and $\frac{8}{\sqrt{2}} = 4\sqrt{2} f_{Se}$ for $h+k+l = 4n+1$ and where f_{Se} is the atomic scattering factor, d is the interplanar spacing and p is the multiplicity factor. At temperatures above 130°C the β -modification transforms to the hexagonal form. Micrographs of crystallites of the various forms are reproduced. The existence in thin films (1000 Å thick) of a modification with the diamond structure is thus established. Acknowledgments are expressed to S.A.Semiletov. There are 2 figures and 3 Soviet references.

ASSOCIATION: L'vovskiy politekhnicheskii institut
(L'vov Polytechnical Institute)

SUBMITTED: November 28, 1959

Card 2/2

24.7200

1144, 1160, 3309, 1158

26643
S/070/61/006/005/001/011
E036/E518

AUTHORS: Andriyevskiy, A.I., Nabitovich I.D. and
Voloshchuk, Ya.V.

TITLE: The structure of thin layers of semiconductors of the
type A_2B_3 in the amorphous state

PERIODICAL: Kristallografiya, 1961, Vol 6, No 5, pp.662-667

TEXT: The structure of thin layers of the compounds As_2Se_3
and As_2Te_3 in the amorphous state are studied by an electron
diffraction method. The samples were prepared by evaporation onto
a Zapon substrate in vacuum. The deposition was carried out at
various rates and the layer thicknesses in the range 500 to 1200 Å.
The layers were subjected to heat treatment at various temperatures
and durations up to one hour. It is shown that the structure of
the compounds changes during temperature ageing and markedly so as
crystallization commences. As the properties of the compounds are
dependent on the structure of the compound any information on the
structure is desirable. During evaporation the substrate was
maintained at -10 or 20°C. The substrate was dissolved off in
acetone and the diffraction patterns taken with various exposures

Card 1/4

The structure of thin layers of

2653
S/070/61/006/005/001/011
EO36/E518

up to 16 sec. Other samples were maintained at various temperatures up to one hour. The analysis of the intensity of the curves is based on earlier papers by L. I. Tatarinova (Refs. 4 and 5: Tr In-ta kristallogr. AN SSSR, 11 104-114, 1955, Kristallografiya, 2.2, 260-267, 1957) and by S. A. Lashko (Ref. 6: K metodike rasshifrovki rentgenogramm amorfnykh tel Izd-vo Dnepropetr un-ta, 1940 (On a method of interpreting X-ray data of amorphous bodies etc.)). From the data the coordination number can be obtained as a function of the temperature and are shown in Figs. 3 and 4 for As_2Se_3 and As_2Te_3 , respectively. The upper curve gives $n_{As,Se}$ and the lower curve $n_{Se,As}$ in both figures. The reproducibility of the results was about 2% for As_2Se_3 . The coordination number was independent of thickness in the range 500 to 1200 Å and of the rate of evaporation. No other thickness range was investigated. The best reproducibility for As_2Te_3 was ~ 4-5% achieved for very rapid evaporation. The slower the evaporation rate the more strongly the components As and Te are separated out and the longer the time required for homogenization. The presence of

Card 2/4

The structure of thin layers of ...

25043
S/070/61/006/005/001/011
E036/E518

negative portions of the radial distribution curves, which should not be present according to theory, cannot be entirely explained by methods of calculating the background. The conclusions are that the structure depends on the temperature and the order increases irreversibly with increasing temperature, particularly in the first two coordination spheres, as far as the crystallization temperature (100°C for As_2Te_3 and 180°C for As_2Se_3 , or ~ 120°C and 230-240°C respectively on the substrate). The degree of order, in fact, increases almost linearly with increasing temperature up to some value (160°C for As_2Se_3 and 85°C for As_2Te_3) at which the coordination number is a maximum. As the crystallization temperature is approached the structure rapidly relaxes. It is supposed that in the latter stage of the process the crystallization is completely destroyed and there is no analogy between the structure in the amorphous state, even in the maximum degree of order, and arrangement of the atoms peculiar to the crystal lattice of the material. There are 4 figures, 1 table and 6 references: 5 Soviet and 1 non-Soviet.

ASSOCIATION: L'vovskiy politekhnicheskii institut
(L'vov Polytechnical Institute)

Card 3/4

ANDRIYEVSKIY, A. I.; NABITOVICH, I. D.; VOLOSHCHUK, Ya. V.

A method for taking the background into account in electron diffraction studies of the structure of amorphous substances.
Kristallografiia 7 no.3:350-352 My-Je '62.

(MIRA 16:1)

1. L'vovskiy politekhnicheskii institut.

(Electron diffraction examination)

ACCESSION NR: AP4039677

S/0181/64/006/006/1828/1833

AUTHORS: Tsall', N. A.; Pashkovskiy, M. V.; Nabitovich, I. D.

TITLE: The effect of anion impurities on the coalescence of F centers in crystals of potassium chloride

SOURCE: Fizika tverdogo tela, v. 6, no. 6, 1964, 1828-1833

TOPIC TAGS: impurity center, color center, alkali halide, electron microscope, absorption spectrum/ SF 5 spectrophotometer, Kyropoulos procedure

ABSTRACT: The crystals were grown by the Kyropoulos procedure in a sealed chamber with an atmosphere of very pure He. The crucible with highly purified salt was heated at 600C for 5 hours during continuous evacuation before the inert gas was introduced. Activation was accomplished by diffusion into heated crystals. Absorption spectra were measured on cleavage plates of colored samples. Measurements were made on an SF-5 spectrophotometer in the interval 4000-10 000 m μ . The absorption curves show strong coalescence of F centers in those parts of the crystals rich in oxygen (the peripheral zones). The centers of the samples, where oxygen was less abundant, showed only slight coalescence. For both oxygen and sulfur doping, the coalescence of F centers took place in the 7200 m μ band. Electron-microscope studies were made to observe coagulation of colloidal particles in crystals

Card 1/2

ACCESSION NR: AP4039677

containing oxygen-bearing anion impurities (OH^- , CO_3^{--} , SO_4^{--}) and combined anion and bivalent cation impurities. The anion impurities strongly stimulated coalescence of F centers, but bivalent cation impurities markedly retarded the process. The authors previously explained this latter process as the result of precipitation of such compounds as $\text{Ca}(\text{OH})_2$, CaCO_3 , and CaSO_4 . This is not the only possibility, however. The introduction of bivalent cation impurities is accompanied by an equivalent number of cation vacancies. Electron neutrality of the crystal may be attained by simultaneous decrease in concentration of anion vacancies. The retarding effect of the impurities may be thus explained either as precipitation of anion impurities or as diminution in the number of anion vacancies. "In conclusion, the authors express their thanks to Professor A. Ye. Glauberman for his valuable discussions and for his constant interest in the work." Orig. art. has: 4 figures.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko (Lvov State University)

SUBMITTED: 12Dec63

ENCL: 00

SUB CODE: SS, OP

NO REF SOV: 005

OTHER: 008

Card 2/2

S/070/62/007/006/006/020
E132/E435

AUTHORS: Andriyevskiy, A.I., Nabitovich, I.D., Voloshchuk, Ya.V.
TITLE: Electron diffraction examination of the amorphous
structures of the compounds of Ga, In and Sb with
Se and Te

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 865-872

TEXT: Amorphous thin layers of the compounds Ga_2Se_3 , Ga_2Te_3 , In_2Se_3 , In_2Te_3 , Sb_2Se_3 and Sb_2Te_3 have been studied by electron diffraction. All specimens were prepared by vacuum evaporation (as alloys) on to celluloid substrates at 20°C . Various speeds of evaporation were used. Some specimens were annealed in vacuo. Multiple exposure electronograms were taken and photometered. Using Beevers-Lipson strips the scattering curves were converted to give radial density distributions. Tables of the coordination numbers at different distances are given. The amorphous structure of all the compounds studied varies with temperature over the range in which it is amorphous. These changes are of three types: (a) Ga_2Se_3 and In_2Se_3 where the amorphous structure at room temperature and at moderate temperatures (200°C) is close to
Card 1/2

Electron diffraction ...

S/070/62/007/006/020
E132/E435

the crystalline structure but which, at temperatures near to the crystallization temperature, is strongly broken up; (b) the compounds Ga_2Te_3 and In_2Te_3 where the amorphous structure near to the crystallization temperature is like the crystalline structure and is strongly broken up at room and at moderate temperatures; (c) the compounds Sb_2Se_3 and Sb_2Te_3 (and also As_2Se_3 and As_2Te_3 which were known earlier) where the amorphous structure is significantly different at all temperatures from the crystalline structure. There are 6 figures and 1 table.

ASSOCIATION: L'vovskiy politekhnicheskii institut
(L'vov Polytechnic Institute)

SUBMITTED: February 20, 1962

Card 2/2

TSAL', N.A.; PASHKOVSKIY, M.V.; NABITOVICH, I.D.

Effect of anion impurities on the coagulation of precipitates of
potassium chloride crystals. Fiz. tver. tela 25:24-25, 1983
Je 164. (UFA 1984)

1. L'vovskiy gosudarstvennyy universitet imen. Iv. Franka.

NAB, TROY, N.Y. 12180

10. The following table shows the number of persons in the United States in the 1960s who were treated for alcoholism in the Federal Government hospitals, and the number of persons who were treated in the Federal Government hospitals who were also treated in the State hospitals.

1. 1.1. Vektor $\vec{v}$ ist ein Element von V . Dann gilt:

L 36962-66 EWT(m)/T/EWT(t)/ETI IJP(c) RDW/JD
ACC NR: AP6016935 SOURCE CODE: UR/0077/66/011/001/002*/0030

AUTHOR: Nabitovich, I. D.; Stetsiv, Ya. I.; Voloshynuk, Ya. V.

ORG: L'vov Polytechnical Institute (L'vovskiy politekhnicheskii institut)

TITLE: Crystallization of selenium xerographic layers

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 11, no. 1, 1966, 27-30 and appropriate inserts following page 30

TOPIC TAGS: electrophotography, selenium, crystallization, dielectric layer, semiconducting film

ABSTRACT: The authors study the crystallization of selenium layers at moderate temperatures (20-100°) with particular regard to the kinetics of crystallization from the substrate side. The specimens were prepared by vaporization of selenium (99.99%) in a vacuum of 10^{-4} mm Hg on aluminum, glass, mica and NaCl substrates held at a constant temperature during vaporization. The rate of deposition was 1 μ /min in all cases. The selenium layers were 8-10 μ in thickness. A "Polmi A" polarization microscope was used for studying the crystallization processes in conjunction with a UEMV-100 electron microscope. Polystyrene lacquer was used to separate the selenium layers from the opaque substrate. It was found that crystallization always begins on the substrate side in the given temperature range and is practically independent of the nature of the

Card 1/2

UDC: 772.93

L 36962-66

ACC NR: AP6016935

underlying layer. The crystals have a dendritic "lobed" form with an extremely fast rate of growth parallel to the substrate and a slow rate of growth in the perpendicular direction. The overall rate of crystallization in the layer is strongly dependent on temperature. No crystallization centers are observed in spray coatings applied for 10 minutes to substrates at a temperature below 70°. Dendritic crystals appear at 70° after 1 hour and at 40° after 15 hours. Layers applied for 10 minutes at temperatures of 70-75° show partial crystallization, while layers produced in the same time at 90° are completely crystallized. Light also has a very strong effect on the rate of crystallization of the selenium layers from the substrate side. An ordinary thermodynamically controlled electric light (82 w) accelerates the rate of crystallization by a factor of 10-50 depending on the aging temperature. It is suggested that high-temperature deposition of selenium layers or heat treatment of layers deposited at lower temperatures may be used to form a double semiconductor-dielectric layer with improved xerographic properties. These layers should be stable at room temperature since the rate of crystallization is extremely slow in the perpendicular direction. Orig. art. has: 4 figures.

SUB CODE: 11,20/ SUBM DATE: 06Oct64/ ORIG REF: 008/ OTH REF: 005

Card

2/2

ACC NR: AP6Q21819

SOURCE CODE: UR/0413/66/000/012/0111/0111

INVENTOR: Nabiullin, F. Kh.; Lidorenko, N. S.; Pen'kova, L. F.; Sladkov, M. S.; Gertsik, Ye. M.; Buzova, Z. M.

ORG: None

TITLE: A method for producing spherical solar energy concentrators. Class 46, No. 182962

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 12, 1966, 111

TOPIC TAGS: solar energy, epoxy plastic, geometric form

ABSTRACT: This Author's Certificate introduces: 1. A method for producing spherical solar energy concentrators. This method consists of forming the solar energy concentrator elements from solidifying materials such as epoxy resins and plating the working surface with a mirror-like metallic coating. Production is simplified by placing the solidifying materials between synthetic films clamped together by a frame on a dead base. One of these films is metallized and the cavity between the base and the film is compressed by air to give the proper shape to the concentrator. 2. A modification of this process in which the concentrator is reinforced by placing material such as glass cloth or metallic rings along the edge of the concentrator between the films. 3. A modification of this process in which the metallized film is removed when necessary after the concentrator base has been set.

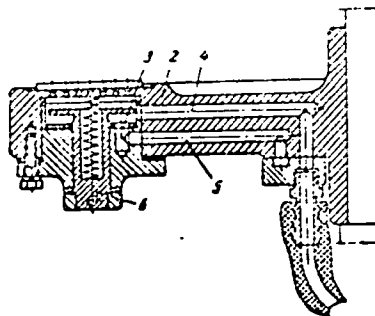
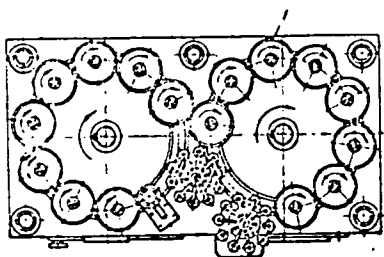
SUB CODE: 13, 11/ SUBM DATE: 08Dec62

Card 1/1

UDC; 535.872.002.2;621.472

ACC NR: AP7002620

position.



1--polishing discs; 2--vacuum suction device; 3--cavity; 4 and 5--channels;
6--spring loaded valve

SUB CODE: 13/ SUBM DATE: 30Nov64

Card 2/2

L 32697-66 EWT(1) SCTB DD

ACC NR: AP6015232 (N)

SOURCE CODE: UR/0410/65/000/002/0003/0010

AUTHORS: Kaznachev, V. P. (Novosibirsk); Kuznetsov, P. G. (Novosibirsk);
Nabiulin, M. S. (Novosibirsk); Subbotin, M. Ya. (Novosibirsk)

65
3

ORG: none

TITLE: Some problems of quantum biology and problems of information transmission
in biologic systems

SOURCE: Avtometriya, no. 2, 1965, 3-10

TOPIC TAGS: biology, quantum theory, tissue physiology, cell physiology, information storage and retrieval, information theory, data transmission, photon, blood

ABSTRACT: Theoretical prerequisites for information transmission in biologic systems by means of quantum fluxes are given. The ultraweak luminosity of blood and a nerve is recorded with a photon counter. The problem includes mechanisms for coding various factors of the medium in quantum fluxes and recording this information in chemical structures and mechanisms for retrieving the recorded quantum information from the chemical structures and utilizing this information in enzymatic-synthetic processes. Comparison of data on physics, chemistry, and information theory with experiments in mitogenetic research indicates the possibility of the existence of a highly efficient system of information transmission

Card 1/2

UDC: 57+61:62.506.2

L 32697-66

ACC NR: AP6015232

in biologic systems with a rate of about 10^{20} bits/sec per watt of consumed energy; the possibility of coding this information in chemical structures of varying complexity; and the possibility of effective conversion of this information to electric signals. The effect of one tissue culture on the growth of another through quartz glass is shown. Possible ways of using the mechanism of quantum information in technical devices are shown.

SUB CODE: 06/ SUBM DATE: 13Jan65/ ORIG REF: 033

Card 2/2 BLG

NABIULIN, Yu. M. inzhener.

Hydraulic embanking machinery. Mekh.stroi. 14 no.3:27 Mr '57.
(MLRA 10:4)
(Hydraulic machinery)

ANGELOV, A.I.; NABIULIN, Yu.N.

Review of N.F. Olofinski's book "Electric methods of ore dressing." TSvet. met. 36 no.10:86-88 O '63. (MIRA 16:12)

ANGELOV, A.I., kand. tekhn. nauk, NABIBLIN, Yu.N., inzh.

Electrostatic separator for dressing phosphorite ores.

Khim. i nefte. mashinost. no. 3:1 4 5 '64.

(MIRA 17-12)

L 35544-65 EMT(2)

ACCESSION NR: AP5008188

S/0286/65/000/005/0065/0065

AUTHORS: Nabiullin, F. Kh.; Lidorenko, N. S.; Pen'kova, L. F.; Sladkov, M. S.; Gertsik, Ye. M.; Tarnizhevskiy, B. V.; Buzova, Z. M.; Beshmenav, V. I.; Marfin, B. V.

TITLE: Mirror base for concentrators of radiant energy. Class 36, No. 168858

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 65

TOPIC TAGS: concentrator, radial energy, metal foil, mirror, aluminum, radiation energy

ABSTRACT: This Author Certificate introduces the application of metallic foil or a thin sheet, of, say, aluminum, as a mirror base for radiant energy concentrators produced by inflating (see Fig. 1 on the Enclosure). Orig. art. has: 1 figure.

ASSOCIATION: Vsesoyuznyy ordena trudovogo krasnogo znameni nauchno-issledovatel'skiy institut istochnikov toka (All-Union Order of Trudovaya Krasnoye Znameniye Scientific Research Institute of Current Generators)

SUBMITTED: 20Aug63

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/1

CHAKHOV, A.A.; BIDZILIYA, N.I.; STANEO, S.A.; NAPIULLIN, F.R.

Photoinduced EPR signals in seeds. *Radiofizika* 11 no.4:
710-713 '65. (MIRA 18:2)

1. Institut fiziologii rasteniy im. K.A. Timiryazeva AN SSSR,
Moskva; Institut fiziologii rasteniy AN UkrSSR, Kiyev i
Vsesoyuznyy nauchno-issledovatel'skiy institut inzhnikov
L'kov, Moskva.

S/074/60/029/011/001/002
B005/B054

AUTHORS: Dal. V. I., Nabavach. V. M.

TITLE: Analysis and Separation of Hydrocarbons of the Benzene
Series by the Method of Gas Liquid Chromatography

PERIODICAL: Uspekhi khimii, 1960. Vol. 29. No. 11 pp. 1353-1361

TEXT: In the present paper, the authors briefly discuss a great number of non-Soviet papers on the analysis and separation of aromatic hydrocarbons with the aid of gas chromatography. The gas chromatographic separation of mixtures is based on the difference found among migration velocities of the individual components along the steady-phase layer. Thus, single zones or bands are formed. There are three groups of theories on the rules governing the motion and elution of these bands. The first group includes the theory of theoretical plates. In each theoretical plate, equilibrium is established between liquid and gas. In the practice, this equilibrium is, however, not attained. The second group comprises the kinetic theories in which molecular motions are considered; macroscopic characteristics are not taken into account. In the third group which is

Card 1/4

Analysis and Separation of Hydrocarbons of the Benzene Series by the Method of Gas-Liquid Chromatography S/074/60/029/011/001/002 B005/B054

called "theory of velocities" or "theory of macroscopic constants", the elution of the bands is described with the use of macroscopic characteristics (diffusion coefficients, mass transfer coefficients, etc.). Gas chromatography is used to separate and analyze various classes of organic compounds. Separation is most difficult with mixtures appearing in the petroleum industry and containing aromatic hydrocarbons among other components. The major part of the present paper is devoted to a discussion of papers on the separation of isomeric xylenes. Gas chromatography allows to separate substances with boiling-point differences of 0.1°C and less. Fluorene picrate, being a steady phase, is particularly selective for the separation of isomeric xylenes. A temperature drop from 140°C to 60°C improves separation. Some authors used substituted tetrahalo-*o*-phthalates which form complex compounds of different stability with the isomeric xylenes. Other polar compounds were also used as steady phases. A complete separation of the isomeric xylenes was achieved with the aid of a column more than 15 m long and having 30,000 theoretical plates, but also much longer capillary columns with even more theoretical plates were used. Two figures illustrate the gas-chromatographic separation of isomeric

Card 2/4

Analysis and Separation of Hydrocarbons of the Benzene Series by the Method of Gas-Liquid Chromatography S/074/60/029/011/001/002
BC05/B054

xylenes with the use of 7,8-benzoquinoline as a steady phase in an ordinary chromatographic column (Fig. 1) and in a 12 m long capillary column (Fig. 2). A table lists the experimental conditions for the analysis and separation of aromatic hydrocarbons suggested by eleven authors. The table contains the following columns: composition of the mixture to be separated; dimensions of the chromatographic column and temperature of separation; steady phase; flow velocity of the carrier gas; quantity of the sample; efficiency of the column in terms of theoretical plates; separation factor for m-xylene / p-xylene; reference. Finally, the authors deal with papers on recording instruments for the qualitative and quantitative gas-chromatographic determination of aromatic hydrocarbons. The following properties are frequently used for recording: heat conductivity, ionization by β -rays, gas density, light absorption in the ultraviolet and infrared, and others. The chromatographic apparatus produced by various Western firms mainly differ by the type of recording instrument, the procedure of gas introduction, the control of the flow velocity, and structural details. In recent years, gas chromatography has become possible at 300-500°C. Shorter columns of larger diameters have

Card 3/4

4/4

NADIVACH, V.I.

Investigation of the role of the ...
and ...
N-D ...

1. ...
3x060.

DAL', V.F.; NABIVACH, V.M.

Utilization of benzoic anhydride as a stationary phase in the gas-liquid chromatography. Khim. i tekhn. topl. i masel. 6 no.10:51-54
0 '61. (MIRA 14:11)

1. Dnepropetrovskiy khimiko-tekhnologicheskiiy institut.
(Gas chromatography) (Benzoic anhydride)

DAL', V.I.; NABIVACH, V.M.

Analysis of the products of crude benzene by the method of
gas-liquid chromatography. Koks i khim. no.7:45-48 J1 '61.
(MIPA 14:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Benzene--Analysis) (Gas chromatography)

DAL', V.I.; NABIVACH, V.M.; RASKINA, L.S.; ARTEM'YEVA, L.N.

Pyrolysis of Shebelinka gas condensates and study of pyrolysis products by means of gas-liquid chromatography. *izv.vys.ucheb.zav.; neft' i gaz* 5 no.8:79-83 '62. (MIRA 17:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. F.E. Dzerzhinskogo.

DAL', V.I.; RASHKIN, L.S.; KULIKOV, V.M.

Pyrolysis of organic materials in the presence of coke-oven gas.
Nefteper. i neftekhim. no. 11-12 '63. (Chem. 17:8)

1. Dnepropetrovskiy Khimiko-Tekhnologicheskii Institut.

NABIVACH, V.M.

Mechanism of the gas-chromatographic separation of ethyl benzene
and isomeric xylenes. Neftepar. i neftekhim. no.12:26-31 '69.
(MIRA 17:4)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut im.
F.E.Dzerzhinskogo.

DAL', V.I.; RASKINA, L.S.; NABIVACH, V.M.

Pyrolysis with water vapor of the gas condensate of the Shebelinka field. Khim.i tekhn.topl.i masel 8 no.1:31-34 Ja '63.

(MIRA 16:2)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. Dzerzhinskogo.

(Shebelinka--Condensate oil wells)

NABIVANETS, B. I.

Y508. Chromatographic separation of chlorides, bromides and iodides. B. I. Nabinets. *Ukr. Khim. Zhur.*, 1956, 23 (6), 816-820; *Russ. Zhur. Khim.*, 1957, Abstr. No. 41,483. -- Review of the anion α 310-36 in the CH form in a study of the chromatographic separation of Cl^- , Br^- and I^- . It was established that the greatest difference in adsorption characteristics is found with a concn. of acetic acid of 0-05 N. Chloride ions are selectively eluted from the column (with an elution rate of 25 ml per min.) by 0-01 N Na acetate at pH 6-8, Br^- by 0-025 N Na acetate and I^- by 0-1 N NaOH. For the almost complete removal of Cl^- and Br^- , 200 to 200 ml of eluent is sufficient, and of I^- 100 to 200 ml. With α 25 milliequiv. of Cl^- , Br^- and I^- , the error caused by the separation is within the limits -- 1-15 to 4-2-01%. C. D. KOPRIN

4
4E3A

N5

Inst Gen + Inorg Chem, AS USSR

NABIVANETS, B. I. Cand Chem Sci -- (diss) "Study of ~~the~~ complex compounds
of molybdenum ~~ammonium~~ in solution. " Kiev, 1957. 10 pp (Acad Sci UkrSSR
Inst of General and Inorganic Chemistry), 100 copies (KL, 5-58, 100)

-10-

1481241 15. 1. 1
BABKO, A.K.; NABIVANETS, B.I.

Conditions of molybdates in solutions. Part 1: Ion migration in
electrolysis. Solubility of molybdic anhydride. Zhur.neorg.khim.
2 no.9:2085-2095 S '57. (MIRA 10:12)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Electrolysis) (Solubility) (Molybdenum oxides)

RABKO, A.K.; NABIVANETS, B.I.

Conditions of molybdates in solutions. Part 2: Absorption of
molybdenum by ionites. Zhur.neorg.khim. 2 no.9:2096-2101 S '57.
(MIRA 10:12)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Absorption) (Molybdenum) (Ion exchange)

NABIVANETS, B.I.

Colorimetric determination of molybdenum in the form of a rhodanide complex. Ukr.khim.zhur. 24 no.6:774-785 '58. (MIRA 12:3)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Molybdenum--Analysis) (Thiocyanates)
(Colorimetry)

5 (2)

AUTHOR: Nabivanets, B. I.

SOV/78-4-8-15/43

TITLE: Investigation of the Thiocyanate Complex of Pentavalent Molybdenum (Izucheniye rodanidnykh kompleksov pyativalentnogo molibdena)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 8, pp 1797 - 1802 (USSR)

ABSTRACT: The opinions expressed in publications concerning the composition of the molybdenum-thiocyanate-complexes differ. The ratio $\text{Mo}^{\text{V}} : \text{SCN}^-$ is 1:2, 1:3, 1:5, and 1:6 (Refs 1-6). The author reports on his investigation of the chemism and the conditions of formation of the molybdenum-thiocyanate-complexes and on the behaviour of the Mo^{V} -ion in acid solution. The investigation was carried out by optical methods, the sign of the charge of the ions was determined by ionic exchange chromatography and by electrolysis. The isomolar solutions (Fig 1), with constant molybdenum concentration and varied thiocyanate concentration, and solutions with constant thiocyanate concentration and varied molybdenum concentration were investigated. It was found that

Card 1/3

Investigation of the Thiocyanate Complex of
Pentavalent Molybdenum

SOV/78-4-8-15/43

the complex formation takes place in the form of a step-wise integration of thiocyanogen ions into the inner sphere of the complex ion. 2 - 3 minutes after mixing the solutions the complex $\text{Mo}^V : \text{SCN}^- = 1 : 3$ is formed, after 25 - 30 minutes the stable value 1 : 5 (Fig 1) is attained. The absorption maximum of the complex depends on the concentration of thiocyanate (Fig 2). $\text{M} + n\text{R} \rightleftharpoons \text{MR}_n$ was assumed as reaction scheme and the instability constant (Table 1): $K_{\text{inst}} \approx 5.6 \cdot 10^{-3}$ was computed for $n = 3$. This shows the step-wise formation of the complex.

$[(\text{Mo}^V)_y \text{R}_{y-3}]$ colorless + $3\text{R} \rightleftharpoons [(\text{Mo}^V)_y \text{R}_{5y}]$ colored. In the case of a high thiocyanate excess a weakening of the color takes place due to the formation of complexes higher than 1 : 5. For the 1 : 5 - complex the absorption coefficient is 15,000, for the 1 : 6 - complex 12,000. The instability constant is $4.5 \cdot 10^{-2}$. In double normal sulphuric acid and in concentrations of the order of magnitude 10^{-2} mol molybdenum reacts in dimer forms.

Card 2/3

Investigation of the Thiocyanate Complex of
Pentavalent Molybdenum

SOV/78-4-8-15/43

Low concentrations of molybdenum and high acid concentrations lead to the depolymerization of the molybdenum cations. There are 6 figures, 2 tables, and 11 references, 6 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN-USSR (Institute of General and Inorganic Chemistry of the AS UkrSSR)

SUBMITTED: March 25, 1958

Card 3/3

BABKO, A.K., akademik; NABIVANETS, B.I. [Nabyvanets', B.I.]

Use of ion-exchange chromatography in determining the polymerization factor of zirconium in solutions. Dop.AN URSR no.5:646-648 '60.
(MIRA 13:7)

1. Institut obshchey i neorganicheskoy khimii AN USSR. 2. AN USSR (for Babko).

(Chromatographic analysis)

(Zirconium)

S/078/61/006/005/008/015

B121/B208

AUTHOR: Nabivanets, B. I.

TITLE: Migration of zirconium ions in perchloric, nitric, and hydrochloric acid medium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 5, 1961, 1150-1154

TEXT: By means of migration, various ionic forms of zirconium in perchloric, hydrochloric and nitric acid were studied as a function of the acidity of the solution. It was found that the cation form of zirconium is reduced with increasing acidity of the solution, and that the anion complex already partly appears at an acidity of 1 N. At an acidity of the solution of $[H^+] \leq 0.5$ N zirconium only appears in the cation form in the solution. In nitric acid solutions the cation and the anion form of zirconium are in equilibrium at $c = 4$ N, and in hydrochloric acid solutions at $c = 8-9$ N. In HNO_3 and HCl solutions with $[H^+] > 2$ N the amount of the neutral form of zirconium remains practically constant, while the amount of the anion complex form increases. The electroneutral form

Card 1/2

Migration of zirconium...

S/078/61/006/005/008/015
B121/B208

of zirconium predominates in such solutions. In perchloric acid solution of the same concentration mainly the cation form of the zirconium complex is formed. In concentrated solutions of perchloric acid the amount of the electrically neutral form of the zirconium complex increases. The relative stability of the anions and electrically neutral zirconium complexes increases in the order $\text{ClO}_4^- < \text{Cl}^- \leq \text{NO}_3^-$. There are 5 figures, 1 table, and

24 references: 11 Soviet-bloc and 13 non-Soviet-bloc. The four most recent references to English-language publications read as follows:
Ref. 2: E. M. Larsen P. Wang. J. Amer. Chem. Soc., 76, 6223 (1954); Ref. 3: B. A. J. Lister, L. A. McDonald. J. Chem. Soc., 4315 (1952); Ref. 12: R. E. Connick, W. H. McVey. J. Amer. Chem. Soc., 71, 3182 (1949); Ref. 13: E. H. Huffman, R. C. Lilly. J. Amer. Chem. Soc., 71, 4147 (1949); 72, 2902 (1951).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR
(Institute of General and Inorganic Chemistry of the Academy of Sciences UkrSSR)

SUBMITTED: April 1960

Card 2/2

NABIVANETS, R.I.

Study of the state of zirconium in solutions using ion electro-
migration methods and by measuring the pH of sulfate solutions.
Zhur.neorg.khim. 6 no.6:1319-1325 Je '61. (MIRA 14:11)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Zirconium sulfate) (Electrochemistry)
(Hydrogen-ion concentration)

55230

25351
S/032/61/027/006/001/018
B124/B203

AUTHORS: Marchenko, P. V., Vdovenko, M. Ye., Nabivanets, B. I.,
Obolonchik, N. V., and Spivakovskaya, N. Ye.

TITLE: Methods of determining impurities in metallic cadmium
of high purity

PERIODICAL: Zavodskaya laboratoriya, v 27, no 6, 1961, 638 - 639

TEXT: The present paper describes a number of chemical methods for determining Fe, Cu, Ni, Sn, Sb, Tl, and As in high-purity cadmium; the determination of Zn had already been described in Ref 1 (P. V. Marchenko. Zavodskaya laboratoriya, XXVI, 5, 532 (1960)). whereas the Pb determination will be described in Ref 2 (M. Ye. Vdovenko, N. Ye. Spivakovskaya. Zavodskaya laboratoriya (in print)). For the corresponding determinations, the authors used semimicro-methods and only purified reagents and re-distilled water. Cadmium was dissolved in hydrochloric acid in a platinum vessel. Iron was determined colorimetrically with the aid of the ternary Fe-thiocyanate-diantipyrilmethane complex which can be extracted with chloroform. The disturbing Cu and Bi are precipitated with ZnS at pH = 4.

Card 1/4

25351

S/032/61/027/006/001/018

B*24/B203

Methods of determining impurities

Fe^{3+} is reduced with ascorbic acid to Fe^{2+} to avoid losses by formation of $\text{Fe}(\text{OH})_3$. Copper is determined without separation from cadmium with diethyl dithiocarbamate; the colored complex is extracted from 40 - 45 ml of aqueous solution with 2 ml of CCl_4 , and the color of the extract is compared with a standard series. Nickel is determined by extraction of its complex with dimethyl glyoxime by means of chloroform and subsequent evaporation of the chloroform under HCl . For the final determination of Ni, the authors used the formation of its complex with dimethyl glyoxime in the presence of ammonium persulfate. Tin is determined colorimetrically by extraction of its diethyl dithiocarbamate complex with chloroform, re-extraction with permanganate, and reaction with p-nitro-phenyl fluorone. For a quantitative extraction of tin in the presence of large Cd amounts, the extraction is repeated four times with new portions of a solution of diethyl dithiocarbamic acid in chloroform. Arsenic is determined colorimetrically in the form of arsenomolybdenum blue which can be extracted with 1 ml of isoamyl alcohol. To concentrate the arsenic and separate it from Cd, the latter is distilled off in the form of arsenic hydride, the

Card 2/4

Methods of determining impurities...

25351
S/032/61/027/006/001/018
B124/B203

analyzed cadmium specimen being used instead of metallic zinc. Antimony and thallium are determined by the known extraction-colorimetric methods with the use of crystal violet from one weighed portion; the difference in the pH-values in the precipitation of their hydroxy acids (Sb at

pH = 5, Tl^{3+} at pH = 8 - 9, and Cd at pH = 7) is used for the cadmium separation. The following table was compiled on the basis of the experiments made.

There are 1 table and 11 Soviet-bloc references.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry of the Academy of Sciences UkrSSR)

Card 3/4

S/078/62/107/002/013/010
B145/B110

AUTHOR: Nabivanets, B. I.

TITLE: Electromigration of titanium(IV) ions in nitric-, hydrochloric-, and sulfuric acid

JOURNAL: Zhurnal neorganicheskoy khimii, v. 7, no. 2, 1962, 412 - 416

TEXT: The distribution of Ti(IV) over the various types of ions was studied in HNO_3 , HCl , and H_2SO_4 by means of electromigration. The technique applied has been described previously (Ref. 19. Zh. neorgan. khimii, 6, 1150, 1319 (1961)) (current strength 40 ma, time of electrolysis (t), voltage (E) = const = 1350, Ti concentration 0.05 mole/liter, photometric determination of the Ti concentration (H_2O_2)). The following quantities were calculated (Table 1) for nitric- and hydrochloric acid solutions: $\alpha\%$, $\alpha^{\circ}\%$, q , i.e. percentage of cationic forms, percentage of anionic forms and neutrality coefficient (for calculation see Ref. 19). Solutions containing negatively charged chloride complexes of Ti(IV) are yellow owing to complex formation. Colorimetric investigation of these

Card 1/0 3

Electromigration of titanium(IV) ..

3/078/02/007/002/013/01
B145/B110

solutions by means of a ФЭКВ-57 (FEKH-57) photoelectric colorimeter showed that a distinct formation of the chloride complexes occurs at $c_{HCl} > 10^{-3}$ and $c_{Ti} > 0.01$ mole/liter. The electromigration of Ti(IV) in sulfuric acid solutions was measured at various H_2SO_4 concentrations on the one hand (Fig. 26), and at constant pH (~ 1.4) and varied sulfate concentration $((NH_4)_2SO_4)$ (Fig. 36) on the other. In the former case, the values found for q (with the corresponding sulfate concentration in mole/liter given in parentheses) were: 0.19 (0.15), 0.34 (0.50), 0.42 (0.75), 0.41 (1.0), 0.43 (2.0), 0.42 (3.0), and 0.42 (5.5). The reactions occurring here in acid solution are $TiO^{2+} + SO_4^{2-} \rightarrow [TiSO_4]^0 + SO_4^{2-} \rightarrow [TiO(SO_4)_2]^{2-}$, etc. In the second case, formation of electroneutral complexes was not observed. The ability of Ti(IV) to form complexes increases in the order $NO_3^- < Cl^- < SO_4^{2-}$. There are 4 figures, 2 tables, and 20 references: 6 Soviet and 14 non-Soviet. The three references to English-language publications read as follows: R. Partington, A. L. Whynes, J. Chem. Soc. Card 2/0

Electromigration of titanium(IV) ...

S/078/62/007/002/013/010
B145/B110

3135 (1949); P. Fireman, J. Amer. Chem. Soc., 76, 741 (1954); K. Kraus, J. Nelson. J. Phys. Chem. 58, 11 (1954).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry of the Academy of Sciences UkrSSR)

SUBMITTED: December 14, 1960

① № опыта	② Среда	E, в	t, мин.	Найдено титана, ммоль·10 ³			⑦ η%	α%	σ
				③ кат. лит	④ ан. лит	⑤ конт. роль- ный опыт			
1	4N HNO ₃ + 0,3N HCl	4,1	330	1,29	0,62	0,73	100	0	0,60
2*	11N HNO ₃ + 0,3N HCl	5,4	390	1,02	0,63	0,71	100	0	0,76
3	0,6N HCl	7,0	193	2,35	0,05	0,61	100	0	0,27
4	0,6N HCl + 0,4N NaCl	6,8	200	2,00	0,14	0,52	100	0	0,32
5	0,6N HCl + 1,4N NaCl	6,4	210	1,29	0,17	0,57	100	0	0,63
6	0,6N HCl + 3,4N NaCl	6,0	225	0,92	0,43	0,57	100	0	0,73
7	1N HCl	5,7	235	1,70	0,12	0,50	100	0	0,38
8	4N HCl	4,6	295	1,60	0,50	0,79	100	0	0,60
9	8N HCl	3,8	355	1,31	0,69	0,84	100	0	0,72
10	11N HCl	3,3	410	0,96	0,85	0,82	82,5	17,5	0,83
11*	11N HCl	7,0	300	0,49	1,32	0,80	0	100	0,80

Table 1

Card 3/3

S/078/62/007/002/014/019
B145/B110

AUTHOR: Nabivanets, B. I.

TITLE: Absorption of Titanium(IV) by ion exchangers

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 2, 1962, 417 - 421

TEXT: The charge of the monomeric Ti(IV) cations in acid solution was determined by measuring the absorption by $KY-2$ (KU-2) cationite. The absorption of Ti from hydrochloric- and sulfuric acid solutions by $AN-2s$ (AN-2f) anionite was studied. The absorption equilibrium is $Ti^{Z+} + z RH \rightleftharpoons R_zTi$

+ zH^+ , where RH is the H form of the cationite. z was determined from

$z = \Delta H^+ / \Delta Ti$ by measuring the pH (potentiometrically) and the Ti concentration in the solution (photometrically: H_2O_2 or chromotropic acid):

$z = 2.21 \pm 0.50$, 2.24 ± 0.50 , and 0.99 ± 0.30 at pH 0.50, 1.17, and 1.40

respectively, on the one hand, and from $K = y_{Ti} [H^+]^z$ (RH = const,

$y_{Ti} = [R_zTi] / [Ti^{Z+}]$) on the other hand by determining the slope of the

Card 1/3

S/078/62/007/00/014/019
B145/B110

Absorption of Titanium(IV) by ...

linear curve $\log \frac{1}{T_1} = f(-\log a_{H^+})$ ($c_{HCl} = 1.0 - 0.032 N$) yielding $z=2(TiO^{2+})$ at pH 1.3, and $z = 1 ([TiO(OH)]^+)$ at pH 1.3. From this follows $K_{hydrolysis} = \frac{[TiO(OH)]^+ [H^+]}{[TiO^{2+}]} = 5 \cdot 10^{-2}$, and $K_H = \frac{[TiO^{2+}][OH^-]}{[TiO(OH)]}$ $= 1.5 \cdot 10^{-13}$ ($18^\circ C$). The results of absorption by AN-2f anionite from hydrochloric acid solutions showed that at $c_{HCl} \leq 1 N$ considerable absorption occurs by complexation of titanyl cations with the amino groups of the resin. Absorption increases at $c_{HCl} = 4 - 9 N$ ($c_{Ti} = 0.1$ mole/liter) (absorption of electroneutral forms) and then remains constant, since absorption of the $[TiCl_6]^{2-}$ ion formed in the range $c_{HCl} = 10 - 11 N$ is but slight owing to the competitive absorption of Cl^- ions. This horizontal section is not found at $c_{Ti} = 0.01$ mole/liter. It is shown that the electroneutral form $TiOCl_2$ absorbed at $c_{HCl} = 4 - 10 N$ forms by two reactions:
 $TiO^{2+} + 2Cl^- \rightleftharpoons TiOCl_2$ and $TiOCl^+ + Cl^- \rightleftharpoons TiOCl_2$ The absorption of Ti

Card 2/3

Absorption of Titanium(IV) by . . .

S/078/62/007/002 014/019
B145/B110

from sulfuric acid solutions was measured firstly against a background of 2 N HCl (absorption does not occur at this concentration in the absence of sulfate) in the case of sulfuric acid solutions, and secondly in $(\text{NH}_4)_2\text{SO}_4$ solutions of pH=1.4. In the former case noticeable absorption occurs only at $c_{\text{H}_2\text{SO}_4} \geq 0.1$ mole/liter, while in the latter strong absorption was observed already at $c_{(\text{NH}_4)_2\text{SO}_4} = 0.05$ M. From this follows that the formation of sulfate complexes of Ti occurs more readily in weakly acid solutions in which the singly charged ions dominate. There are 3 figures, 2 tables, and 5 references: 4 Soviet and 1 non-Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR
(Institute of General and Inorganic Chemistry of the Academy of Sciences UkrSSR)

SUBMITTED: December 14, 1960

Card 3/3

NABIVANETS, B.I.

Determination of the composition and stability of titanyl sulfate
complexes by ion exchange chromatography. Zhur.neorg.khim. 7
no.3:690-693 Mr '62. (MIRA 15:3)
(Titanyl sulfate) (Chromatographic analysis)

NABIVANETS, B.I.

State of niobium (V) in solutions of nitric, hydrochloric,
and sulfuric acids. Zhur. neorg. khim. 9 no.5:1079-1084
My '64. (MIRA 17:9)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

L 32721-65 EWO(j)/EWT(m)/EPF(c)/EFF(n)-2/EWP(t)/EPR/EWP(b) Pr-4/Ps-4/Pu-4

IJP(c) JD/JG

ACCESSION NR: AF5001132

S/0073/65/020/001/0072/0075

AUTHORS: Babko, A. K.; Lukianets, I. G.; Nabivanets, B. I.

TITLE: Titrimetric determination of niobium as a peroxide complex

SOURCE: Zhurnal analiticheskoy khimii, v. 20, no. 1, 1965, 72-75

TOPIC TAGS: titrimetry, niobium, peroxide, hydrogen peroxide, titanium, molybdenum, vanadium, ammonium sulfate

ABSTRACT: It was found that niobium, by forming 1 : 1 complexes with hydrogen peroxide, deactivates the latter to the extent of reducing considerably its reactivity with permanganate at 20C in 1 M sulfuric acid. This effect has been used to work out a titrimetric method for the determination of niobium. Titanium, molybdenum, and vanadium, whose peroxide complexes react instantaneously with permanganate and also excesses of ammonium sulfate, do not disturb the titration of niobium. Fluorides have to be neutralized by aluminum salts. A method has been worked out for determining niobium in 0.01 M solutions by alkaline melts of niobium pentoxide, with subsequent dissolving in aqueous hydrogen peroxide. The free peroxide is oxidized by permanganate in 1 M sulfuric acid medium. This is followed by introducing concentrated sulfuric acid and titrating the peroxide bound to

Card 1/2

L 32724-65

ACCESSION NR: AP5004432

niobium by 0.01 M permanganate. Orig. art. has: 1 graph and 4 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii, AN UkrSSR, Kiev
(Institute of General and Inorganic chemistry, AN UkrSSR)

SUBMITTED: 13Jun64

ENCL: 00

SUB CODE: GC

NO REF SOV: 002

OTHER: 003

Card 2/2

NABIVANETS, B.I.

Study of the state of zirconium in solutions by a method involving
absorption with ion exchangers. Zhur.neorg.khim. 7 no.5:1187-
1190 My '62. (MIRA 15:7)

(Zirconium) (Ion exchange)

S/078/62/007/012/011/022
B144/B180

AUTHOR: Nabivanets, B. I.

TITLE: Study of the state of tantalum (V) in solutions of nitric, hydrochloric and sulfuric acids

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 12, 1962, 2739-2745

TEXT: The work included determination of the solubility of tantalic acid (I) in HCl, H₂SO₄ and HNO₃, the isoelectric region of I and the effect of the Ta form on its reactivity with pyrocatechin (PC) in the presence of oxalic acid. The initial solutions were: A) 0.1 mole potassium tantalate dissolved in 1 N KOH; B) 0.05 mole TaCl₅ dissolved in 11 N HCl. 0.1 - 10 N HCl solutions of B with a Ta content of $1 \cdot 10^{-3}$ mole/l were brought into reaction with a solution (pH ~2.5) containing 1 mole [PC] and 0.25 mole $[C_2O_4^{2-}]$ per liter. Optical density measurements indicated that the coloring rate decreased with HCl concentration owing to formation of polymers or colloid Ta of low reactivity, while almost quantitative

Card 1/3

Study of the state of tantalum ...

S/078/62/007/012/011/022
B144/B180

conversion was observed after preliminary boiling with concentrated HCl and $\text{NH}_4\text{HC}_2\text{O}_4$. The solubility of I was determined in 1:50 mixtures of A with KOH, HNO_3 , HCl or H_2SO_4 of various concentrations with additions of KNO_3 to obtain solutions of 1μ ionic strength. In the isoelectric region (pH 8 - 2) the solubility of I was $1.5 \cdot 10^{-5}$ mole/l. In the 5 - 8 N region where the colloid formation is similar in the 3 acids, the solubility increased in the order HNO_3 - HCl - H_2SO_4 due to the different stabilities of the Ta complexes. The electrodialysis was studied in a dialyzer with cellophane membranes to retain the colloid Ta forms. The percentage distribution of Ta between cations and anions was calculated from: $k_{\%} = (k - n) \cdot 100 / (k + a - 2n)$, and $a_{\%} = 100 - k_{\%}$, where k is the Ta quantity in moles or grams found in the catholyte, a the Ta in the anolyte and n the control. In HNO_3 , mainly Ta cations formed. Their polymer character was shown by comparing their migration rate with that of TiO^{2+} under identical conditions. With $[\text{HCl}] > 6$ and $[\text{H}_2\text{SO}_4] > 0.4$ mole,

Card 2/3

Study of the state of tantalum ...

S/078/62/007/012/011/022

B144/B180

anionic Ta was observed. Cationic Ta changed into anionic Ta in $[HCl]$ 6 - 7 N and in $[H_2SO_4] \sim 0.5$ mole/l. In H_2SO_4 , more electroneutral complexes formed than in HCl; the maximum neutrality coefficients, q , calculated from $q = n/(k + a - n)$ were ≈ 0.95 and ~ 0.65 . Ta is indifferent in LiCl and $KHSO_4$ (both with 0.5 N HCl). There are 7 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry of the Academy of Sciences UkrSSR)

SUBMITTED: April 18, 1962

Card 3/3

S/075/62/017/005/003/007
1033/1233

AUTHOR: Nabivaneta, B.I.

TITLE: Separation of zirconium from titanium and other elements

PERIODICAL: Zhurnal analiticheskoy khimii, v.17, no. 5, 1962, 585-590

TEXT: This was the first investigation of separation of Zr from other elements as an anionic sulphate complex on USSR resin. Increase of H_2SO_4 concentration causes decrease of absorption of Zr and Ti on the $ЭДЭ-10П$ (EDE-10p) anionite because of the formation of the bisulfate complexes. Increase of Na_2SO_4 concentration causes first an increase, then decrease of absorption.

Card 1/3

S/075/62/017/005/003/007
1033/I233

Separation of zirconium...

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN
SSSR, Kyev (Institute of General and Inorganic
Chemistry, AS UkrSSR, Kiev)

SUBMITTED: July 11, 1961

Card 3/3

L 17426-63

EMP(q)/EWT(m)/BDS AFFIC/ASD JD/JG

ACCESSION NR: AP3004345

S/0078/63/008/008/1839/1845

AUTHORS: Babko, A. K.; Lukachina, V. V.; Nabivanets, B. I. 60 58

TITLE: Solubility and acid-base properties of the hydrates of tantalum and niobium oxides.

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 8, 1963, 1839-1845

TOPIC TAGS: tantalum, niobium, tantalum hydroxide, niobium hydroxide, nitric acid, tantalic acid, niobic acid

ABSTRACT: The solubility of freshly-precipitated tantalum and niobium hydroxides in nitric acid media was studied. It was established that the "isoelectric region" of the tantalic acid is in the pH interval from 9 to 2. This region is in a pH interval of 7-0 for niobic acid. The above shows that the metallic properties of tantalum are more pronounced than those of niobium. The effect of the degree of concentration of H^+ and OH^- on the solubility of tantalic and niobic acids has been calculated. It

Card 1/2

L 17426-63

ACCESSION NR: AP3004345

2
was established that, in acidic as well as in basic media, the monomeric ions of tantalum and niobium are formed in the initial stage of solubility. The constants of basic and acidic dissociation of tantalum and niobium hydroxides were calculated when the solubility was doubled. The instability constants of the hydroxy complexes of tantalum and niobium were calculated from the results of the basic dissociation constants and with application of electrostatic characteristics. Effect of the rate and duration of centrifuging for completeness of the separation of the precipitate has also been studied. Orig. art. has: 3 tables, 5 graphs and 8 equations.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN UkrSSR
(Institute of general and inorganic chemistry, AN, UkrSSR)

SUBMITTED: 11Oct62

DATE ACQ: 21Aug63

ENCL: 00

SUB CODE: PH, CH

NO REF SOV: 009

OTHER: 000

Card

2/2

NABIVANETS, B.I.

State of tantalum (V) in solutions of oxalic, tartaric, hydrofluoric acids, and hydrogen peroxide. Zhur. neorg. khim. 8 no.10:2302-2307 0 '63. (MIRA 16:10)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.
(Tantalum compounds) (Acids) (Hydrogen peroxide)

NABIVANETS, B.I.; KUDRITSKAYA, L.N.

Determination of the charge of complex ions by paper electrophoresis.
Ukr.khim.zhur. 29 no.6:586-589 '63. (MIRA 16:9)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.
(Complex compounds) (Electrophoresis)

NABIVANETS, B.I.; KUDRITSKAYA, L.N.

Complex of thorium (IV) with xylenol orange. Ukr. khim. zhur.
29 no.11:1198-1205 '63. (MIRA 16:12)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

BABKO, A.K.; LUKACHINA, V.V.; NABIVANETS, B.I.

Tantalum oxalate complexes. Zhur. neorg. khim. 10 no.4:865-876 Ap
'65. (MIRA 18:6)

NABIVANETS, B.

... ..
... ..
... ..
... ..
... ..
... ..

NABIVANETS, B.I.; KUPCHENKO, I.M.

Hydroxo complexes of cerium(IV). Ukr. khim. zhurn. 3, no. 6:
891-895, 1974. (USSR) 1975

1. Institut khimicheskoy neorganicheskoy khimii AN UkrSSR.

NABIVANETS, B.I.; LUKACHINA, V.V.

Hydroxo complexes of titanium (IV). Ukr.khim.zhurn.
1128 '64.

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR.

BABKO, A.K.; LUKIANETS, I.G.; NABIVANETS, B.I.

Titrimetric determination of niobium as a peroxide complex.
Zhur. anal. khim. 20 no.1:72-75 '65. (MIRA 18:3)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR, Kiyev.

MAPIVA WTS, A.I.

10th. The teleconferrence of General and Applied
Chemistry. Zhur. Anal. Khim. No. 11:10-11/11/11
(11:11:11)

63636-65 EPT(c)/EAP(j)/EWT(m)/EWG(m)/T Pc-l/Pr-l RM/DS

ACCESSION NR: AP5013764

UR/0074/65/034/005/0949/0967
543.544

AUTHOR: Nabivanets, B.I.

TITLE: Application of ion exchange chromatography to the study of the state of ions of high-valence elements in solution

SOURCE: Uspekhi khimii, v. 34, no. 5, 1965, 949-967

TOPIC TAGS: ion exchange, ion exchange chromatography, high valence element, ionic charge, ion exchange reaction, ion exchange equilibrium, polymerization factor, swelling, ionite, complex compound, complex compound formation, complex compound stability

ABSTRACT: Available methods for qualitative determination of the form of existence of elements in solution, for the determination of charge magnitudes of ions (based on equilibrium and reversibility of ion exchange reactions, and on swelling of ionites), for the determination of polymerization factors (based on equilibrium shift and ion exchange rate), and for the determination of composition and stability of complex compounds in solution are discussed and analyzed. It is concluded that: 1) the ion exchange method can be successfully applied to the study of the

Card 1/2

L 63636-65

ACCESSION NR: AP5013764

3

ionic state of high-valence elements in solution, thanks to the specific properties of the ionites (namely, ion exchange equilibrium, swelling, and ion exchange rate); 2) ion exchange is the only method which permits determination of the charge magnitude of ions in solution by direct experiment at the present time; 3) ion exchange in conjunction with other methods makes it possible to study the polymerization of processes of inorganic compounds in solution; and 4) ion exchange in conjunction with other methods is an effective means for studying complex compounds of high-valence elements and permits determination of the quantitative characteristics of the complex formation processes in solution. Orig. art. has: 33 formulas, 6 figures, and 3 tables.

ASSOCIATION: In-t obshchey i neorganicheskoy khimii Akademii nauk Ukrainsskoy SSR, Kiev (Institute of General and Inorganic Chemistry, Academy of Sciences, UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: GC, IC

NO REF SOV: 050

OTHER: 022

Card

2/2

L 36080-66 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6016299 (N) SOURCE CODE: UR/0075/66/021/001/0040/0045

AUTHOR: Nabivanets, B. I.; Kudritskaya, L. N.

ORG: Institute of General and Inorganic Chemistry, AN UkrSSR, Kiev
(Institut obshchey i neorganicheskoy khimii AN UkrSSR)

TITLE: Separation of ²³²thorium from accompanying elements and production of analytical concentrates by the method of ion exchange chromatography

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 1, 1966, 40-45

TOPIC TAGS: thorium, chemical separation, ion exchange chromatography, zirconium, cation

ABSTRACT: The article presents the results of experiments on the separation of thorium from many elements, and on the concentration of thorium from solutions containing from 2×10^{-2} to 1×10^{-2} micrograms/milliliter, using a type KU-2 cation exchange resin. Experiments were made under static conditions: 0.15 grams of KU-2 cation exchange resin in the hydrogen form (grain size 0.5-1.0 mm) were mixed with 15 milliliters of the solution to be analyzed up to the point at which equilibrium was established. The concentration of zirconium or thorium in the starting solutions was 1×10^{-3} molar. In the separation of

Card 1/2

UDC: 543.544

L 36080-66

ACC NR: AP6016299

thorium from zirconium and other elements, 25 milliliters of a mixture of 5 N HClO₄ + 0.1 N H₂SO₄ containing about 10 milligrams of Th(IV), as well as Be(II), Fe(III), Cr(III), Ti(IV), Ce(IV), Sn(IV), V(V), Nb(V), W(VI), or U(VI) was passed at a rate of 2-3 milliliters/min through a column filled with cation exchange resin KU-2 in the H-form (depth of the layer was 20 cm and the diameter 1 cm). Fractions of the eluate of about 25 ml were selected and from each of them the metal ions were determined by standard photometric methods. Results are exhibited in a series of curves and tables. The method described was used for the concentration of thorium from very dilute solutions of the order of 10⁻⁸ to 10⁻⁹ molar. The degree of concentration obtained was approximately 1000. Orig. art. has: 1 figure and 3 tables.

SUB CODE: 07/ SUBM DATE: 06Jul64/ ORIG REF: 021/ OTH REF: 021

Card 2/2

V.1900, M.S., NABUYEV, A.

Effect of stream aeration on the depth of local aeration. Izv.
AN Uz. SSR. Ser. tekhn. nauk i no. 50-60 '65.

1965, 18, 10

1. Prednaznacheniy nauchno-issledovatel'skiy institut "Motoyht
problem i gidrotekhniki.

ABDURAKHMANOV, Yu.A.; NABIYEV, A.I.

Biological characteristics of fishes occurring in tail waters of the Mingechaur Hydroelectric Power Station and the effect of the regulated flow of the Kura River on their behavior and populations. Trudy Inst.zool.AN Azerb.SSR 20:5-69 '59.

(MIRA 12:10)

(Mingechaur Reservoir region--Fishes)

NABIYEV, A.I.

Biology of *Varicorhinus capoëta* (Güld.) in Mingechaur Reservoir.
Izv.AN Azerb.SSR.Ser.biol.i med.nauk no.1:59-62 '61. (MIPA 14:6)
(Mingechaur Reservoir—Carp)

NABIYEV, A.I.; MELIKOVA, P.K.

Biology of the reproduction of pike perch and hybrids of roach and
bream in Minegechaur Reservoir. Izv.AN Azerb.SSR.Ser.biol.i med.
nauk. no.5:3-8 '62. (MIRA 15:9)
(MINGECHAUR RESERVOIR--CARP) (REPRODUCTION) (MINGECHAUR RESERVOIR--PERCH)

NABIYEV, A.I.; MELIKOVA, P.K.

Dynamics of the abundance of commercial fishes in Mingechaur
Reservoir. Vop. ekol. 5:144-145 '62. (MIRA 1:10)

1. Opornaya baza Instituta zoologii AN Azerbaydzhanskoj SSR,
Mingechaur.

(Mingechaur Reservoir--Fishes)

NABIYEV. A.I.; MELIKOVA, P.K.

New fish hybrids from Vaynara Reservoir. Izv. AN Azerb. SSR. Ser.
biol. nauk no.3:131-134 '65. (MIRA 18:10)

NABIYEV, A.N.

Investigation of soil erosion behind the "Gishkora" combination
type overfall. Izv. AN Uz. SSR. Ser. tekhn. nauk 7 no.5:
67-73 '63. (MIRA 17:2)

1. Institut vodnykh problem i gidrotekhniki AN UzSSR.

NABIYEV, E.G.

Epidemiological characteristics of dysentery in the Bavlly District
of the Tatar A.S.S.R. Kaz.med.zhur. no.5:84-87 S-O '60. (MIRA 13:11)

1. Iz sanitarno-epidemiologicheskogo otdela (zav. - E.G.Nabiyev)
Bavlinskoy rayonnoy bol'nitsy Tatarskoy ASSR (glavnyy vrach -
R.Kh.Galeyeva)
(BAVLY DISTRICT--DYSENTERY)

NABIYEV, E.G.

Survivability of syntomycin-resistant dysenterical bacteria in fecal masses. Kaz.med.zhur. no.5:47-50 S-O '62. (MIRA 16:4)

1. Kafedra mikrobiologii (zav. - prof. S.M.Vyaseleva) Kazanskogo gosudarstvennogo instituta dlya usovershenstvovaniya vrachey imeni V.I.Lenina.

(ACETAMIDE)

(SHIGELLA)

(FECES--ANALYSIS)

SPIVAK, M.Ya.; ARGUDAYEVA, N.A.; NABIYEV, E.G.; CHISTOVICH, G.N.;
RIVLIN, M.I.; SEMENOV, M.Ya.; KRUGLIKOV, V.M.; SHAL'NEVA, A.M.;
TITROVA, A.I.; RAYKIS, B.N.; MILYAYEVA, Ye.N.; BRUDNAYA, E.I.;
GODINA, I.F.; VOL'FSON, G.I.; SOSONKO, S.M.; KOLESINSKAYA, L.A.;
VYSOTSKIY, B.V.; MALYKH, F.S.; MIROTVORTSEV, Yu.I.; SYCHEVSKIY,
P.T.; GOPACHENKO, I.M.; KARPITSKAYA, V.M.; FETISOVA, I.A.;
MARTYNYUK, Yu.V.; EMDINA, I.A.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.3:128-131
Mr '63. (MIRA 17:2)

1. Iz Kemerovskogo meditsinskogo instituta i Kemerovskoy
klinicheskoy bol'nitsy No.3 (for Spivak, Argudayeva). 2. Iz
Kazanskogo instituta usovershenstvovaniya vrachey imeni
Lenina (for Nabiyeu). 3. Iz Leningradskogo kozhnogo dispansera
No. 1 (for Chistovich, Rivlin). 4. Iz Rostovskoy oblastnoy
sanitarno-epidemiologicheskoy stantsii (for Semenov). 5. Iz
Stavropol'skogo instituta vaktsin i syvorotok (for Kruglikov,
Shal'neva, Titrova, Raykis). 6. Iz Kuybyshevskogo instituta
epidemiologii, mikrobiologii i gigiyeny i Tsentral'nogo insti-
tuta usovershenstvovaniya vrachey (for Milyayeva). 7. Iz
Vsesoyuznogo nauchno-issledovatel'skogo instituta zhelezn-
dorozhnoy gigiyeny Glavnogo sanitarnogo upravleniya Minis-
terstva putey soobshcheniya i Detskoy polikliniki st. Lyublino

(Continued on next card)

NABIYEV, E.G.

Survival of synthomycin-resistant dysentery bacteria in external environment. Report No.3. Zhur. mikrobiol., epiz. i parazit. no. 3:139 Mr '64. (USSR 17.11)

1. Kafedra mikrobiologii Kazanskogo instituta usovsoversheniya vrachey Imeni Lenina.